UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF HOME ECONOMICS
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COMMUNITY CANNING CENTERS

By Mabel C. Stienbarger, Bureau of Home Economics, and
Miriam Birdseye, Office of Cooperative Extension Work,
U. S. Department of Agriculture.

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PURPOSE OF THE CENTERS

Community canning centers are organized for one or more of the following purposes:

1. To demonstrate standard methods and suitable equipment for home canning, together with standards for canned products.

2. To emphasize the importance of a well-planned canning budget as a means of providing essential kinds of food during the non-growing months at little cash expense.

3. To provide opportunity for the less experienced to can under supervision.

4. To make canning equipment available for those unable to own it.

5. To provide space and opportunity for drying and pickling vegetables and fruits to supplement the canning budget and minimize the expense for containers.

6. To take care of surplus products from subsistence or community gardens, and thus reduce the demands upon county, state, and federal relief funds.

Incidentally, the canning center becomes a center for educational work during and perhaps after the canning season.

TYPES OF CENTERS

Reports from extension workers show that several types of centers have been successfully organized to meet different conditions.

1. Neighbors or home demonstration club members experienced in canning methods have pooled their personal equipment and worked together at the peak of the season in order to save time and fuel; or have met at intervals to teach and assist unskilled neighbors to can, or to provide canned products for the school lunch.

2. Circulating equipment owned by the county has been scheduled for use in different communities and set up at convenient meeting places for one or two days at a time, for use under the supervision of the home demonstration agent or of leaders trained by her.

3. Home economics laboratories in schools have been provided with suitable equipment, and have operated under the direction of the home economics teacher, or of trained leaders.

4. Traveling canning kitchens, consisting of retorts and steam boiler mounted on a chassis have been scheduled throughout the county under the direction of a trained worker. This device is most useful in a large county with scattered communities.

5. Stationary equipment has been set up in especially designed buildings, or more frequently in rooms or buildings made over for canning purposes. Hundreds of these centers were set up last year on plantations, in small industrial communities, and in towns where, under trained supervision, unemployed persons canned for themselves or volunteers canned for relief purposes. A few centers were set up in connection with home demonstration markets, at cooperative creameries, or in connection with stores. Reports indicate that there will be many more centers with stationary equipment during the coming summer.

6. In a few instances, an individual owning and operating a small canning plant has canned for his neighbors or for welfare agencies, making a fixed charge per can, and taking pay in cash, labor, or a percentage of the raw or finished product.

Canning Centers for Families Receiving Relief

In many States the Reconstruction Finance Corporation is requiring the families it aids to grow gardens under the supervision of local supervisors or of the Extension Service, and encouraging them to preserve the surplus products.

In a recent leaflet the Home Economics Relief Committee of the Alabama Relief Administration outlines three types of canning centers for helping R.F.C.-aided families to preserve surplus home-raised food.

Type 1. "Canning days" held primarily to teach simple methods of canning and drying food for use at home.

Trained community leaders will conduct canning meetings one or two days each week to teach women in families receiving R.F.C. aid to do canning or drying in their own homes. R.F.C.-aided women will be scheduled to attend the canning center on definite days, bringing a limited amount of home-grown products to be canned or dried. After these women have been taught methods of conserving their surplus food supply, other persons in the community may secure permission to use the canning center for pressure canning at a scheduled time. A portion of the products canned may be left to pay for the use of the equipment.

Type 2. Canning centers which provide a place where those without canning equipment may come to can their surplus products.

In these centers, families receiving R.F.C. aid will do practically all their canning on assigned days, under the direction of trained community leaders, or of a paid full-time supervisor if the center operates continuously. Those receiving work relief who are unable to provide containers may receive empty containers instead of pay for their work. A portion of the products canned may be left to pay for the use of the equipment.

Type 3. Canning centers for cities and large towns where there are large numbers of unemployed:

1. The community plant should be under the direction of a full-time supervisor employed at a regular salary.

2. Surplus food from community gardens, home gardens, and farms may be sent to the canning plant to be canned and dried.

3. R.F.C. persons may be assigned work in the canning plant just as they would be assigned any other work relief.

4. The containers and the food that is canned will be the property of the agency administering relief funds.

5. Laborers may be paid for their work in canned food, or given part pay in canned goods.

6. The canned goods left at the canning plant may be used for part pay to workers on other jobs.

FINANCING THE CANNING CENTER

Providing for the purchase and installation of equipment and for necessary repairs, securing containers, and providing the salary of a trained supervisor are the first and usually the most serious problems in establishing the canning center. Proper financing should be arranged for with responsible parties before proceeding to further plans.

Tin cans or glass jars, pressure canners and tin can sealers have frequently been purchased or made available by county appropriating bodies, school boards, civic organizations, banks, planters, mill owners, or factory managers, or by the American Red Cross. In some states the Reconstruction Finance Corporation program permits financing the purchase of containers, but only for persons receiving R.F.C. relief.

While the use of canning equipment and of containers has sometimes been given outright, more frequently a proportion of the products canned, or a certain amount of labor, has been required from the persons using it. In this way, many centers have stored up a large stock of canned goods for distribution to the needy, or for sale.

To lessen the number of containers required, dried and brined products may be put up at the canning center. Many fruits, and corn, pumpkin, squash, nearly matured peas and beans can be successfully dried. Cabbage, turnips, and string beans, as well as cucumbers, can be brined or "krauted." (See Farmers' Bulletin No. 1438, "Making fermented pickles"; also publications by State Agricultural Colleges on drying and brining fruits and vegetables.)

SUPERVISION

Where untrained persons are assembled to can, using unfamiliar equipment, the success of the whole enterprise depends upon competent supervision. Without it there will be waste of material and time, and possibly menace to health. This is especially true where nonacid vegetables and meats are canned. The county home demonstration agent, the local home economics teacher, or other local person trained in home economics, should be consulted or made responsible for planning, equipping and operating the center, and should be asked to train, or to approve the appointment of suitable persons to oversee the canning.

The manager directs all work, keeps records, and labels or supervises the labeling of containers. At least one responsible person must watch and record the processing of products, and a man is helpful for heavy lifting, tightening clamps on retorts, and turning the hand sealer. Large centers will require several permanent helpers in addition to the families who bring their products to can.

Methods reported by extension workers in 1932 for securing satisfactory supervision of the canning centers include:

1. For small centers, the home demonstration agent may train or approve experienced volunteer women to work in teams of 2 on days when the canning center operates.

2. For larger centers, the agent trains or approves a permanent cannery manager, who may be a volunteer worker or else is paid either in cash, in a percentage of products canned, or partly in cash and partly in products.

3. Agent trains a committee of men and women to run the center. This committee then arranges a schedule for supervision.

PLANNING SPACE FOR WORK AND EQUIPMENT

While the canning center serves a vital need, its purpose is usually more or less temporary. The object is to conserve food, utilize spare hands, and save money under present conditions, rather than to conduct a permanent enterprise for profit. The probable life of the project should be considered in planning and equipping the center.

Sufficient pure water, thorough screening, good lighting, ventilation, sanitation, proper disposal of waste water and garbage are essential for every center. These should be carefully arranged to save time and steps. Conditions should determine, however, whether it is wiser to provide several cookers of household size, and other equipment which can later be used in the home, or to set up hotel or factory-size retorts and other large-scale equipment, which have greater capacity but may fall into disuse when the emergency passes. While equipment must be suitable and safe, ingenuity and local carftsmanship can sometimes produce effective and inexpensive substitutes for commercial devices.

Even the smallest center for group canning needs to make provision for practically all of the following operations:

Receiving and checking products to be canned.
Keeping records.
Removing and disposing of husks, stems, and other gross waste from products to be canned.
Washing products to be canned.
Washing glass jars, tin cans, cooking equipment, utensils, towels.
Heating water.
Grading and preparing products, disposing of waste.
Sterilizing glass jars, if open kettle method is used.
Scalding or precooking products to be canned.
Marking tin and glass containers before processing.
Filling products into containers.
Exhausting (for meats).
Sealing (for tin cans).
Processing in pressure cooker (nonacid products); in water bath (fruits and tomatoes).
Cooling: tin cans in running water, if possible, glass jars in air out of draft.
Cleaning and labeling finished products.
Storing - supplies, equipment, finished products (temporary or permanent).
Cleaning up, inside, outside.

Sanitary toilet and hand-washing facilities and space for wraps must also be provided, and other pertinent requirements of the State Sanitary Code must be met.

These needs, together with the volume of work, number of workers, water supply and fuel situation, space and money available, determine the amount and arrangement of equipment. While some centers can be built for the purpose, in most cases existing rooms, sheds, or buildings will have to be adapted. Certain steps, like washing products, heating water, and processing containers may even need to be carried on out of doors. Thus every center becomes an individual problem.

In general, arrange equipment to save steps and avoid cross-travel. Plenty of water, generous heating surface and work space pay for themselves by expediting the canning process and saving fatigue.

For working surfaces the following measurements are recommended:

Height for standing work, 34 to 36 inches
Height for sitting work, 27 to 28 inches
Knee room, 6 to 8 inches
Height of tables may be easily adjusted by adding or removing wooden blocks.

The diagrams on pages 16 to 20 may be helpful to persons charged with planning a community canning center. Figure 1 shows large equipment desirable, arranged in convenient sequence for canning operations. Figure 2 illustrates a suggested layout for a store remodeled for use as a canning center with gas as fuel, and suggests possibilities when steam under low pressure is available from steam line or boiler. Figure 3 shows a room in a country school adapted for a center, with washing of products, heating of water, and processing done with improvised equipment outside the building. Figure 4 shows a small building designed for a canning center; and Figure 5 shows a room specially planned for small-scale canning operations.

RECORDS

Whatever the type of center, daily records are needed.

Registration File should show name, community, post office address, and desired information on family make-up. There may be space on the back of this card or on a separate card for estimating the family canning budget and recording total number of containers needed, empty containers at home, and additional containers needed. This is especially desirable for centers serving relief families.

Kitchen Appointment Blank, by communities and/or families.

Family Canning Record shows date center was used by each family, number of members using, hours spent, and products prepared, classified according to

(1) Product: kind; owned or furnished.
(2) Containers: glass - number and size; tin - number and size; owned or furnished; processing method used; number containers taken home; number left for center.

Production Record (wall size) should show dates, number of persons using the center, kind of products prepared (fruits, vegetables), total number containers of each; number glass and tin containers used respectively; number of containers taken home by workers; number left for center.

Cost Records of products, supplies, containers, and other equipment purchased for the use of the center and of needed repairs; also of time spent by manager and by paid or volunteer assistants.

Where centers are used by families receiving relief, additional data will probably be collected by the employment or welfare agencies, and turned over to the manager of the center.

NOTICES

Brief notices in large print, posted in appropriate places, have been found to save time and misunderstandings. The following are suggested:

Schedule for center: Working days; hours; days assigned to each community.
State sanitary regulations for canning plants.
Directions for operating cookers.
Time-table for processing.
Rules for care of equipment.
Rules for cleaning and care of waste.
Sample canning budget.
Caution about boiling nonacid canned products before tasting.
Improvised bulletin board for special notices and assignments.

EQUIPMENT

The following table of capacity, number of workers, and equipment for canning centers, because of its compactness and quantity of information, has been quoted from the report of the Illinois Extension Service.

Items for centers of different capacities

	2 medium steam pressure cookers	4 medium steam pressure cookers	6 medium steam pressure cookers
Approximate capacity for 8 hour working day . . .	250 No. 2 cans	500 No. 2 cans	750 No. 2 cans
Approximate number of workers needed	7	14	20
Equipment necessary:			
Stoves	4 burners	6 burners	8 burners
Sink	1 large	2	3
Table space (4-5 ft. long)	1 receiving 1 preparation 1 measuring 1 filling and sealing	1 receiving 2 preparation 1 measuring 1 filling and sealing	1 receiving 2 preparation 2 measuring 2 filling and sealing
Tin can sealers	1	1	2
Buckets	2	3	4
Tubs for cooling	1 or 2 small	3	4
Shallow pans (6 qt. or larger)	6	12	16 - 18
Dish pans	2	2 or more	4
Tea kettle or large kettles	1	2	3
Kettles for precooking vegetables (12 qt.) .	2	3	4
Wire baskets or colanders	1 per sink	1	1
Funnels or can fillers .	2	3	4
Ladles or dippers with hook or handle	3	4	5
Can lifters or tongs . .	2 pair	4 pair	6 pair
Measuring cups - 1 cup .	1	2	3
- 1 quart	1	2	3
Paring knives	4 or more	6 - 8	10
Long knives (heavy) . .	2	3	4
Forks	2	2	3
Tablespoons	2	4	6
Teaspoons	2	4	6
Long handled spoons . .	2	3	4
Brushes for vegetables and cleaning	3 each	6 each	8 each
Scissors (if used to cut beans)	2	4	6
Thermometer	1	1	2
Towels, dish	3 daily	4 daily	6 daily
, hand or paper .	- - - - - - 1 for each worker daily - - - - -		
Wash basins	2	4	6
Hot dish holders	6	10	15
(Gloves may be used for handling hot cans)			

"Medium steam pressure cookers" refers to about the forty-quart size. Ten loads are allowed for an eight-hour day.

Additional suggestions are a clock, wheelcart, soap, cleansing powders, and first aid kit for cuts and burns.

Pressure Cookers

Pressure cookers are needed for processing meats and nonacid vegetables, which include all vegetables except tomatoes, rhubarb, and ripe pimientos. The 25 and 30 quart sizes of pressure cookers are suitable for both household use and canning centers. Cookers larger than this are too heavy for a woman to lift, and will necessitate the assistance of a man unless they can be left stationary.

Follow directions of the manufacturers regarding operation and care of the pressure cookers, and post these instructions for the benefit of the workers.

Pressure Cooker Dimensions and Capacities

Size	Diameter approximate	Height approximate	Net weight approximate	No. 2 tins	No. 3 tins	Pint jars	Quart jars
10 qt.	9½ in.	12 in.	12 lbs.	6	2	5	3
18 "	12 "	14 "	18 "	14	8	8	5
25 "	13 "	15 "	27 "	16	10	18	7
30 "	14 "	15 "	35 "	19	12	20	8
40 "	15 "	15 "	50 "	25	16	?	?
90 "	18 "	18 "	140 "	48	30	?	?

Testing Gauges

It is important to test the gauges on pressure cookers, as they are quite likely to get out of order. On cookers which have been used before, the test should be made at the beginning of the canning season, and on all cookers from time to time thereafter. If a reliable master gauge is available, the test can be made by removing the petcock, or safety valve. Screw in the master gauge and run up the pressure while comparing the two gauges. It is not necessary that the air should be exhausted from the cooker for this test. If an error of one or two pounds is found, an allowance can be made for it in processing. If the error is as much as three pounds, the gauge should be replaced by a new one. Such repair parts can be obtained from the manufacturer. A paste of glycerine and litharge, such as plumbers use, may be put over the threads before screwing in any attachment on the pressure cooker top. This will make the closure steam-tight.

Another method of testing the gauge on a pressure cooker is by use of a maximum thermometer* of suitable range (100° - 300° F.). Place the thermometer in a container that will hold it in an upright position in the cooker. Run the pressure up to the lowest point that will be used, say 10 pounds. Return the pressure to zero, open the cooker, observe the thermometer, shake down the mercury, and start again. Run the pressure up 5 pounds higher, to 15 pounds, and again observe the thermometer. Gauges sometimes show an error of about 1 pound at 10 and 2 pounds at 15.

Pressures and corresponding temperatures are as follows:

5	pounds pressure,	227° F.
10	" "	239° F.
15	" "	249° F.

Water Baths

Many types of water baths, or boiling vats, are in use for processing the acid foods -- fruits, tomatoes, rhubarb, and ripe pimientos. These vats must be deep enough to permit covering the food containers with at least an inch of water. After filling, the glass jars or tin cans are placed on a rack with space between for circulation of water. Tin cans may be placed in two or more layers. Cover the vats with lids to hold in steam.

Glass Jars

Examine jars carefully and test seals (except self-sealing type) before using. Use only good quality, tested, new jar rubbers.

Glass Jar Sizes;

Quart	3-5/8	inches	diameter
	7	"	high
Pint	3-3/8	"	diameter
	5-1/2	"	high

Tin Cans

Many foods may be canned in either glass jars or tin cans. Products such as pickled beets which are covered with a liquid essentially vinegar, should be packed in glass. Rhubarb is very corrosive on tin, therefore should be canned in glass. Strawberries are likely to fade even more in sanitary enameled cans than in glass.

* A maximum thermometer suitable for these tests may be purchased from Taylor Instrument Company, Rochester, N.Y., for $4.75.

For most other foods there are advantages in using tin for canning center because --

1. Output is larger. More containers can be processed in a given length of time.

2. Initial cost is less.

3. Heat penetration is better, and the processing period is generally shorter.

4. Tin cans may be water cooled, hence there is less overcooking of products.

5. No loss of liquid occurs during the processing.

6. Tin cans are easier to handle and transport.

For certain products, enameled cans are needed to preserve color. Such cans are of two kinds. Sanitary enamel is bright gold in color and C enamel is dull gold. Red-colored fruits and beets are put up in sanitary enameled cans. Corn and succotash are canned in C enamel. Sanitary enamel cans are also used for pumpkin and squash to prevent corrosion. While other uses may be made of enameled cans (See Bureau of Home Economics mimeographed sheet #449), the above are most essential.

Buy only first grade tin cans. Difficulties in obtaining tight seals have been reported in a number of cases where cans of second grade were used. Lots of a thousand or more are cheaper than smaller lots.

Common Sizes of Standard Cans for Fruits and Vegetables

Can No.	Dimensions inches	Average Net weight	Contents Cupfuls
No. 1	2-11/16 x 4	11 oz.	1-1/3
No. 1 tall	3-1/16 x 4-11/16	16 "	2
No. 2	3-7/16 x 4-9/16	20 "	2-1/2
No. 2½	4-1/16 x 4-11/16	28 "	3-1/2
No. 3	4-4/16 x 4-14/16	33 "	4
No. 5	5-2/16 x 5-10/16	3 lbs. 8 "	7
No. 10	6-3/16 x 7	6 lbs. 10 "	13

Sealing Machines

A hand sealing machine is needed for tin cans. Machines without attachments for opening cans are suitable for sealing, and may be purchased at a saving over the other type.

Care is needed in adjusting sealing machines. Test them before starting to seal the food. Seal a can or two partially filled with water, submerge in water, and observe for leakage of air bubbles.

Give the operation of sealers over to one or two persons who become familiar with it.

CANNING BUDGETS

For community canning, even more than for home canning, it is useful to draw up canning budgets. This means beginning with a fruit and vegetable budget, showing the needs of a family of given size for a year. Of these requirements, the amount of food to be canned will depend upon how much is used fresh, how much is available for storing fresh, how much is to be dried or brined. It will depend also upon the length of the growing season, for the canning budget should provide only for the period when fresh fruits and vegetables are out of reach. Families in the South will require less canned food than families in the North where the growing season is comparatively short.

Naturally no one budget pattern will fit all localities, and the Extension Services of the various State agricultural colleges have drawn up fruit and vegetable budget plans based on conditions in their own states. Each canning center should secure these recommendations from the county home demonstration agent or the State Extension Service, and post them in a conspicuous place. The manager should help families unfamiliar with the budget to work out their own budget plans.

Canning budgets worked out in this way for Alabama are shown below for families of different sizes. They are based upon the requirements for an adequate diet at minimum cost. The quantities suggested presuppose a sufficient supply of potatoes or sweet potatoes, dried beans, peas, and peanuts, in addition to the canned products. If carrots, beets, turnips, and cabbage also are stored and if some fruits are dried, the canning budget may be reduced.

Suggested Canning Budgets for Use in Alabama Centers

Food	No. weeks needed	2 adults	Parents and 1 child	Parents and 2 children under 12
Tomatoes	36	72 pts. or No. 2 cans	100 pts. or No. 2 cans	144 pts. or No. 3 cans
Leafy and green vegetables	8	24 pts. or No. 2 cans	40 pts. or No. 2 cans	24 qts. or No. 3 cans
Other vegetables or fruit	32	64 pts. or No. 2 cans	80 pts. or No. 2 cans	96 pts. or No. 2 cans

Suggested Canning Budgets for Use in Alabama Centers (contd.)

Food	No. weeks needed	Parents and 3 children under 15	Parents and 4 children under 15	Parents and 5 children under 15
Tomatoes	36	108 qts. or No. 3 cans	108 qts. or No. 3 cans	144 qts. or No. 3 cans
Leafy and green vegetables	8	28 qts. or No. 3 cans	36 qts. or No. 3 cans	48 qts. or No. 3 cans
Other vegetables or fruit	32	64 qts. or No. 3 cans	73 qts. or No. 3 cans	92 qts. or No. 3 cans

Approximate Yield of Canned Fruits and Vegetables

Fruit or vegetable		Quantity raw	Yield
Apples	lbs.	$2\frac{1}{2}$	1 No. 3 can
Berries	"	$1\frac{1}{4}$ to $1\frac{1}{2}$	"
Cherries	"	$1\frac{1}{4}$ to $1\frac{1}{2}$	"
Peaches	"	2 to $2\frac{1}{2}$	"
Pears	"	2	"
Plums	"	$1\frac{1}{2}$ to 2	"
Tomatoes	"	$2\frac{1}{2}$ to $3\frac{1}{2}$	"
Asparagus, whole	"	3	"
Beans, shelled lima	"	2	"
Beans, snap	"	$1\frac{1}{2}$	"
Beets, baby	"	3	"
Corn		4 to 6 ears	1 No. 2 can
Greens	"	1	"
Peas, green	"	4	1 No. 3 can
Pumpkin	"	4	"
Sweetpotatoes	"	$2\frac{1}{2}$ to 3	"

POINTS IN THE CANNING PROCESS

Selection and Care of Fresh Foods

Foods for canning should be of good quality in every respect, and should be canned as soon as possible after they are gathered. They should be delivered to the canning center early in the day, and in quantities not too large to be taken care of on that day. When foods are held in a warm place, micro-organisms may increase to such an extent that the usual canning processes are inadequate, and spoilage is certain. This has been the cause of numerous failures in community work. If any foods must be held over, separate them into small lots and place in a cool, well-ventilated room, or a refrigerator.

Washing

Wash foods thoroughly to remove all traces of soil. If galvanized iron utensils are used, do not allow acid foods or foods with cut surfaces to remain in them, because enough zinc may thus be taken up to make the material poisonous.

Grading

To obtain uniform products, grade the fruits and vegetables as to size and degree of ripeness. Since the non-acid vegetables are more difficult to sterilize, only those that are young and tender should be canned.

Preparing Containers

Wash tin cans before using, but keep the lids dry. For open kettle canning sterilize glass jars in boiling water before filling. For water bath or pressure processing have the jars clean and hot, but not necessarily sterile.

Preheating

This treatment accomplishes several purposes. It drives out air from tissues and causes the shrinkage usually necessary to obtain a good pack in canning. Removal of air from the tissues also influences the keeping qualities and helps to preserve flavor and color. The processing time is shortened by preheating, and adequate processing is more likely to be obtained, especially in those foods which are slowly penetrated by heat, because of their thick or viscous nature.

Preheating is generally done by cooking the food a short time before placing it in the jars or cans; or it may be done by "exhausting" the cans after they are filled. In the latter case, after hot sirup or hot brine is poured over the food in the cans, they are placed in a bath of hot or boiling water which comes to within about one inch of the tops of the cans. (No liquid need be added to meat that is heated in this manner). The bath is covered to retain the steam. The time required to drive out air and give an internal temperature suitable for sealing the cans (170°-185° F., or steaming hot) varies with the product; e.g. 10 to 20 minutes for some fruits and 40 to 60 minutes for meats. This method can be used to special advantage for fruits which break badly during precooking, namely, berries, cherries, currants, and grapefruit.

Filling and Sealing

Leave 1/2 to 1/4 inch headspace on containers (for tomato juice none). Use a sufficient proportion of liquid to solid to prevent a dense pack.

Precooked foods packed in glass jars may be fully sealed for water bath processing, but not quite fully sealed for pressure processing. Foods packed in glass jars without precooking should not be fully sealed for any processing. Foods canned in tins must be heated by precooking or exhausting before the cans are sealed, and must be sealed before processing.

It is important that foods in jars and cans be sealed while the headspace is filled with steam. Thus a partial vacuum is formed when the material cools.

Processing

Obtain processing time-tables from a reliable source. Farmers' Bulletin No. 1471, "Canning fruits and vegetables at home," and directions for canning meats may be obtained upon request from the Bureau of Home Economics, U. S. Department of Agriculture. Also, directions may usually be obtained from the county home demonstration agent or the State Agricultural College.

Post these time-tables over the cookers.

Loss of Liquid from Glass Jars

If glass jars are used in a pressure cooker, precautions to avoid the loss of liquid are: Do not quite complete the seal before processing. The adjustment varies with different kinds of jars. Keep the pressure as constant as possible during processing. Allow the pressure gauge to reach zero before opening the petcock, then open it very gradually so there is no sudden outrush of steam. Complete seals on the jars at once. If liquid has been lost do not open the jars to add more, as this will necessitate reprocessing.

Cooling

After processing, cool glass jars in air. Set jars apart from each other, but keep them out of drafts. Cool tin cans in running water, or in water frequently changed.

Labeling

Label all canned foods with name of owner, kind of product, variety, and date. Glass jars may be marked with a glass pencil, or with gummed labels. Tin cans may be marked with rubber stamps, India ink, or canners' ink, which stands hot water. Use rubber cement to fix paper labels on tin, or if the paper labels are long enough, place glue along one end, wrap smoothly around the cans, and lap the glued end over the other. Labels may be purchased in quantity from jobbing houses or printed to order. (See attached list of manufacturers).

Storage of Canned Products

When well cooled store the canned foods in a cool, dry place. Protection from light is necessary for foods in glass containers.

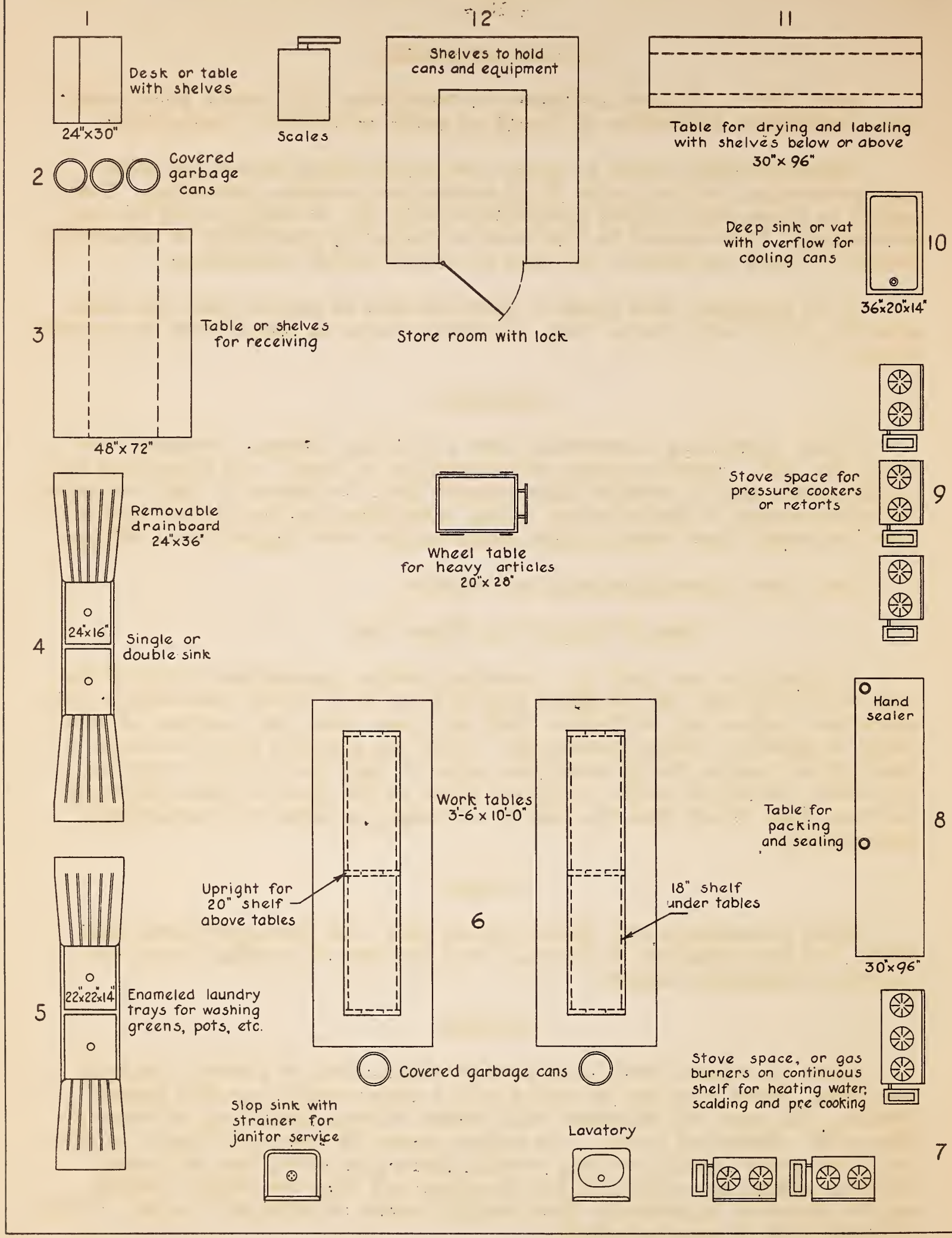

FIG. 1. DIAGRAM OF EQUIPMENT DESIRABLE FOR CANNING CENTER ARRANGED IN CONVENIENT ORDER FOR CANNING OPERATIONS

Bureau of Agricultural Engineering
Drawing No 2737.

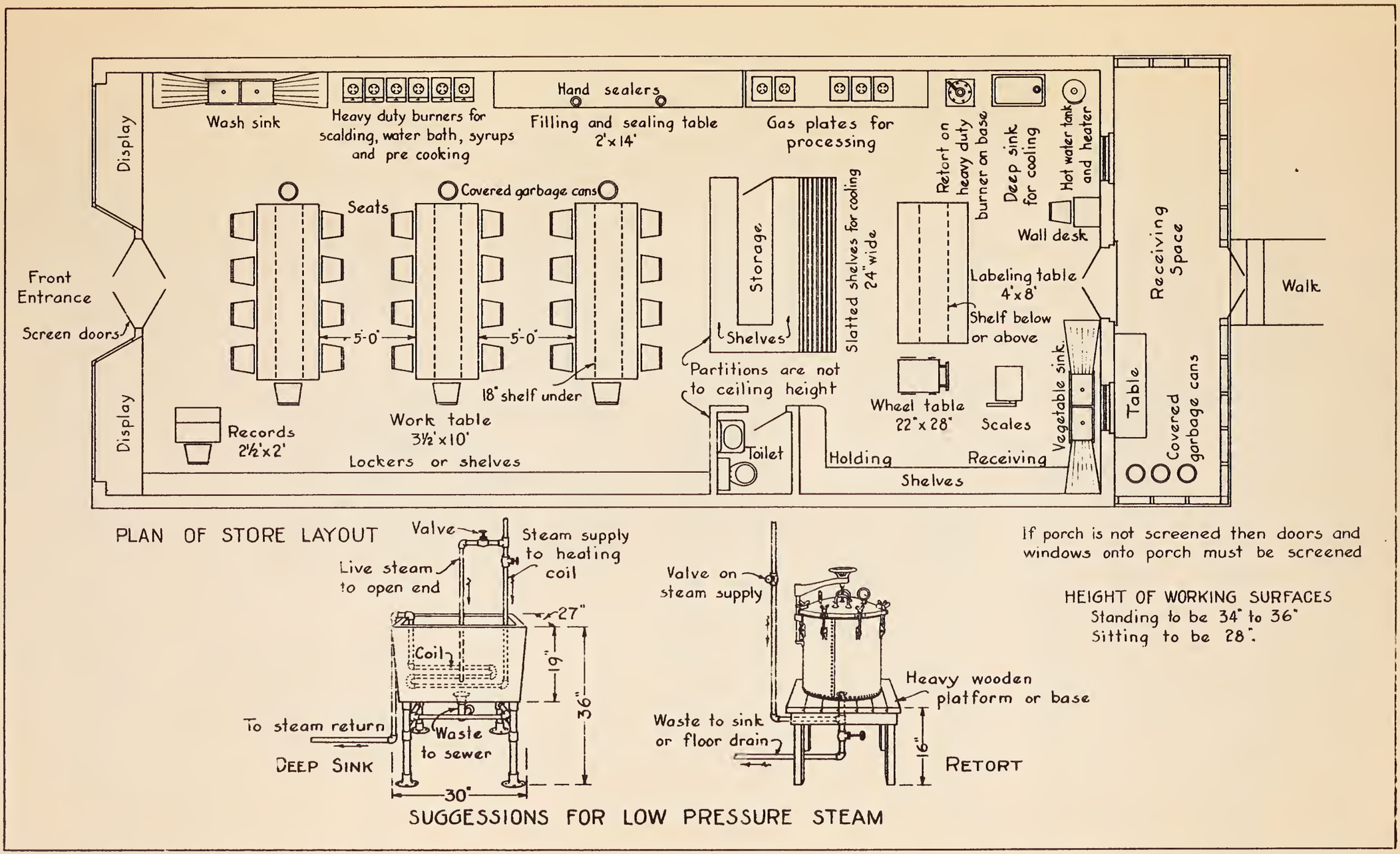

FIG. 2. SUGGESTED LAYOUT FOR COMMUNITY CANNING CENTER IN A 24 FEET BY 65 FEET STORE BUILDING WITH GAS INSTALLATION

COAL OR OIL STOVES MAY BE SUBSTITUTED

Bureau of Agricultural Engineering
Drawing No. 2738.

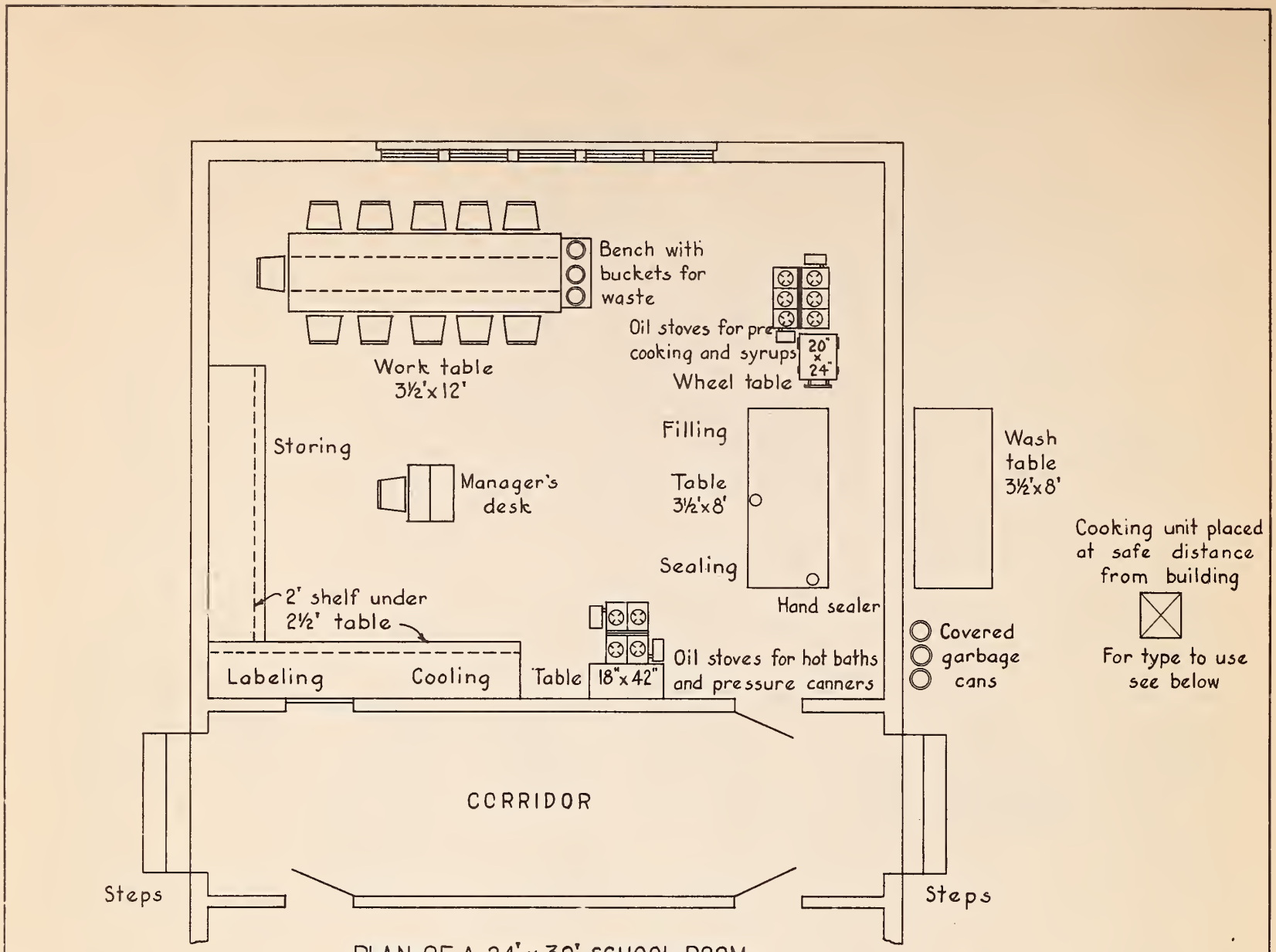

FIG. 3. LAYOUT FOR COMMUNITY CANNING CENTER IN A SCHOOL ROOM WITH SUGGESTIONS FOR IMPROVISED OUTDOOR EQUIPMENT

Bureau of Agricultural Engineering
Drawing No 2739.

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(14) Neetzel, J. R.
1946. Minnesota wood lot yields a valuable crop. Tech. Note No. 248 (processed). Lake States Forest Expt. Sta., St. Paul, Minn.

(15) Ross, Don
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(16) United States Department of Agriculture-Soil Conservation Service
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(17) _____ - Weather Bureau
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Sec. 45, southwestern Minnesota, 24 pp.
Sec. 46, southeastern Minnesota, 24 pp.

(18) United States Department of Commerce - Bureau of the Census
1936. Minnesota statistics, by counties. 24 pp.

(19) _____
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(20) University of Minnesota
1940. Pruning young windbreak trees. Ext. Folder 91, 6 pp., illus., St. Paul, Minn.

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(22) White, Charles H.
1942. Home-grown timber for farm buildings. Univ. of Minn. Ext. Bul. No. 238, 16 pp., illus.

(23) Zon, Raphael, and Duerr, William A.
1942. Farm forestry in the Lake States an economic problem. U.S. Dept. of Agr. Cir. No. 661, 34 pp., illus.

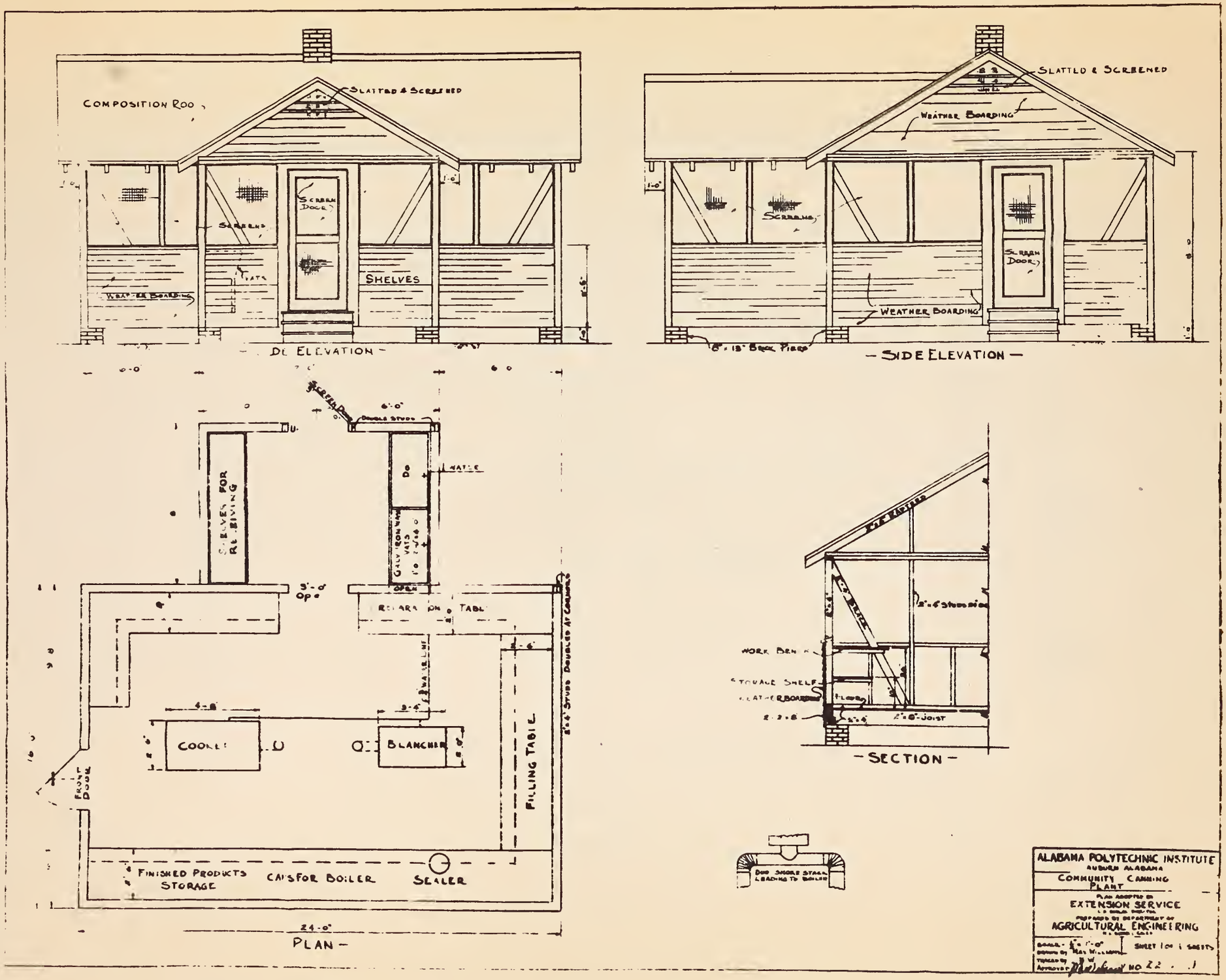

Figure 4. Elevations and Floor Plan for a Small Community Canning Plant in a Separate Building. Alabama Extension Service.

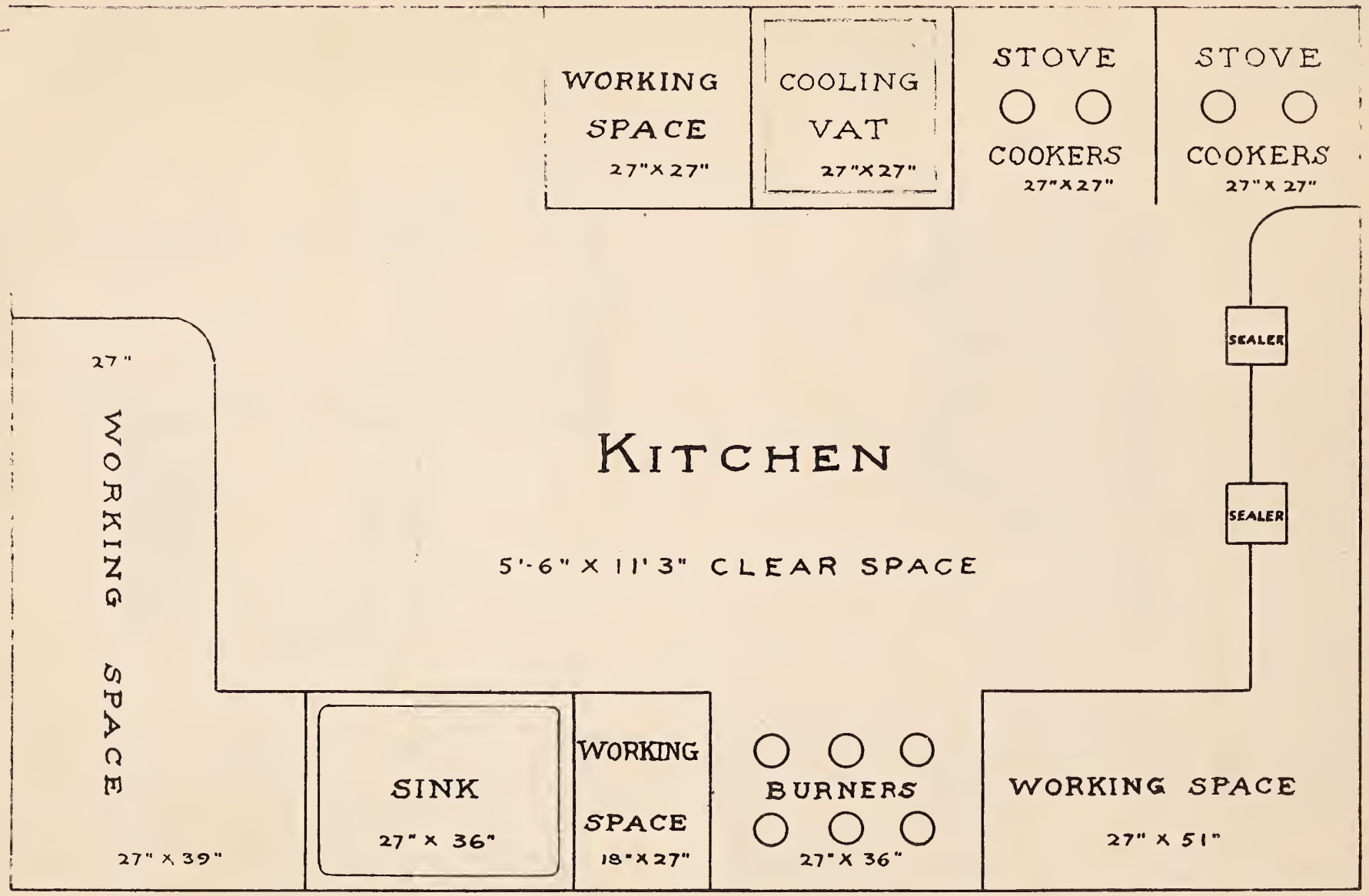

Figure 5. Room planned for Small-Scale Canning Operations, Freeport, Texas, Home Demonstration Club.

A PARTIAL LIST OF MANUFACTURERS OF HOME CANNING EQUIPMENT

In giving these names, no guarantee is implied nor should it be inferred that the products of these firms are recommended in any way over those of other firms which may be manufacturing canning equipment.

PRESSURE COOKERS (STEAM)

Automatic Canning Devices, Inc., 549 Randolph St., Chicago, Ill.
Burpee Can Sealer Co., 215 W. Huron St., Chicago, Ill.
Columbia Canning Machinery & Supply Co., 505 N. 29th St., Portland, Oreg.
Denver Metals Foundry, 1739 Blake St., Denver, Colo.
Dixie Canner Co., Inc., Little Rock, Ark. (household and larger retorts)
Halftime Cooker Co., Inc., 7556 Oglesby Ave., Chicago, Ill.
National Aluminum Manufacturing Co., Peoria, Ill.
National Pressure Cooker Co., Eau Claire, Wis.
Sprague-Sells Corp., 308 W. Washington St., Chicago, Ill. (household and larger retorts)
The Pressure Cooker Co., 338 Broadway, Denver, Colo.

WATER BATHS, RACKS, JAR HOLDERS, ETC.

Hamblin & Russell Mfg. Co., Inc., Worcester, Mass.
Kerr Wire Products Co., 319 N. Whipple St., Chicago, Ill.
Rochester Can Co., 109 Hague, Rochester, N. Y.
Stahl Mfg. Co., Quincy, Ill.

GLASS JARS

Ball Bros. Co., Muncie, Ind.
Capstan Glass Co., Connellsville, Pa.
Foster-Forbes Glass Co., Marion, Ind.
Hazel-Atlas Glass Co., Wheeling, W. Va. (Have resident agent in China)
Illinois-Pacific Glass Corp., 15th and Folsom, San Francisco, Calif.
A. H. Kerr and Co., Sand Springs, Okla.
Latchford Glass Co., Huntington Park, Calif.
Owens-Illinois Glass Co., Toledo, Ohio.
Peerless Glass Co., Long Island City, N. Y.
Salem Glass Works, West Salem, N. J.

RUBBER RINGS

Acme Rubber Manufacturing Co., Trenton, N. J.
Ball Bros. Co., Muncie, Ind.
Boston Woven Hose and Rubber Co., Cambridge, Mass.
Canfield Rubber Co., 129 Garden St., Bridgeport, Conn.
S. Cupples Co., 7th and W. Corner Spruce, St. Louis, Mo.
B. F. Goodrich Rubber Co., Goodrich Station, Akron, Ohio.
United States Rubber Co., 2 Market St., Passaic, N. J.
Western Rubber Co., Goshen, Ind.

CAPS FOR GLASS JARS AND BOTTLES

American Can Co., New York Central Bldg., New York City.
Anchor Cap and Closure Corp., 22 Queens St., Long Island City, N.Y.
(Metal caps and sealing equipment for glass containers).
Ball Bros. Co., Muncie, Ind.
Bernardin Bottle Cap Co., Evansville, Ind.
Capstan Glass Co., Connellsville, Pa.
Manor Metalcraft Corp., Columbia, Pa.
Phoenix-Hermetic Co., 2444 W. 16th St., Chicago, Ill.
Real Seal Cap Co., 2419 W. 14th St., Chicago, Ill.
White Cap Co., Inc., 1369 N. Branch St., Chicago, Ill.

TIN CANS

Acme Can Co., Ltd., 1717 N. Main St., Los Angeles, Calif.
American Can Co., 104 S. Michigan Ave., Chicago, Ill.
(Will not send catalogue)
Atlas Can Co., 241 Wythe Ave., Brooklyn, N.Y.
Buffalo Can Co., Inc., 240 Clinton St., Buffalo, N.Y.
Central Can Co., Inc., 4527 W. Lake St., Chicago, Ill.
Continental Can Co., Inc., 100 E. 42nd St., New York City.
Dixie Canner Co., Inc., Little Rock, Ark.
Eagle Can Co., 290 Commercial St., Boston, Mass.
Gordon Can Co., Omaha, Nebr.
R. Hardesty Mfg. Co., 31st & Blake, Denver, Colo.
Independent Can Co., Howard and Ostend Sts., Baltimore, Md.
Metal Package Corp., 110 E. 42nd St., New York City.
Fred L. Myers Co., Inc., Lewes, Del.
National Can Co., 71 Locust St., Boston, Mass.
Phillips Can Co., Cambridge, Md.
Western Can Co., 17th and Rhode Island Sts., San Francisco, Calif.

SEALERS FOR TIN CANS

Automatic Canning Devices, Inc., 549 Randolph St., Chicago, Ill.
Burpee Can Sealer Co., 215 W. Huron St., Chicago, Ill.
Northwestern Iron & Steel Co., Eau Claire, Wis.
Montgomery Ward & Co., Chicago, Ill.

JELLY GLASSES

Ball Bros. Co., Muncie, Ind.
Capstan Glass Co., Connellsville, Pa.
Hazel-Atlas Glass Co., Box 175, Wheeling, W. Va.
A. H. Kerr and Co., Sand Springs, Okla.
Monongah Glass Co., Fairmont, W. Va.
Salem Glass Works, West Salem, N.J.

CANNERS LABELS

Colorprint Label Co., 125 S. 8th St., St. Louis, Mo.
Dixie Canner Co., Inc., Little Rock, Ark.
Fuller Label & Box Co., 444 Dargan, Pittsburgh, Pa.
Higgins & Gollmar, Inc., 38 Ferry St., New York, N.Y.
Kalamazoo Label Co., 200 Ransom St., Kalamazoo, Mich.
R. J. Kittredge & Co., 812 W. Superior, Chicago, Ill.
Maryland Color Printing Co., Holliday & Hillen, Baltimore, Md.
United States Printing & Lithograph Co., 2 Beech St., Cincinnati, Ohio.
also, 20 Cross St., Baltimore, Md.

(5/8/33) 447R M.C.S.